

ABSTRACT OF THE DISCLOSURE

In a detector apparatus, voltage signals of phase A and phase B are mixed, the mixed signal is divided to obtain a low-voltage signal, and the low-voltage signal is integrally smoothed. The integrally smoothed low-voltage signal is added to each of the voltages obtained by smoothing the voltage signals of the phase A and phase B. The results are used as threshold voltages of comparators constituting a wave-shaping circuit. The threshold voltages change in accordance with the voltage signals of phase A and phase B, achieving a high accuracy of binarization even when the voltage signals  $S_a$  and  $S_b$  have variations.